AD-A218 726

Form Approved
OMB No. 0704-0188

1a

1b RESTRICTIVE MARKINGS

2a SECURITY CLASSIFICATION AUTHORITY

2b DECLASSIFICATION / DOWNGRADING SCHEDULE

3 DISTRIBUTION / AVAILABILITY OF REPORT
Approved for public release; distribution is unlimited

4 PERFORMING ORGANIZATION REPORT NUMBER(S)
USAFSAM-JA-89-64

5 MONITORING ORGANIZATION REPORT NUMBER(S)

6a NAME OF PERFORMING ORGANIZATION
USAF School of Aerospace Medicine

6b OFFICE SYMBOL (If applicable)
USAFSAM/EKEN

7a NAME OF MONITORING ORGANIZATION

6c ADDRESS (City, State, and ZIP Code)
Human Systems Division (AFSC)
Brooks AFB TX 78235-5000

7b ADDRESS (City, State, and ZIP Code)

8a NAME OF FUNDING / SPONSORING ORGANIZATION
USAF School of Aerospace Medici

8b OFFICE SYMBOL (If applicable)
USAFSAM/EKEN

9 PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER

8c ADDRESS (City, State, and ZIP Code)
Human Systems Division (AFSC)
Brooks AFB TX 78235-5000

10 SOURCE OF FUNDING NUMBERS

PROGRAM ELEMENT NO	PROJECT NO	TASK NO	WORK UNIT ACCESSION NO
87714F	SUPT	XX	EK

11 TITLE (Include Security Classification)
A New Method for Collecting Adult Phryganeid Caddisflies (Trichoptera: Phryganeidae) (UNCLASSIFIED)

12 PERSONAL AUTHOR(S)
Bowles, David E.; Stephan, Karl; Mathis, Michael L.

13a TYPE OF REPORT	13b TIME COVERED	14 DATE OF REPORT (Year, Month, Day)	15 PAGE COUNT
Journal Publication	FROM 1988 TO 1988	27 Nov 89	5

16 SUPPLEMENTARY NOTATION

17 COSATI CODES		
FIELD	GROUP	SUB-GROUP

18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
Trichoptera, Phryganeidae, Collecting method, Ptilostomis Nutrition

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

A fermented molasses trap was used to collect several specimens of the caddisfly genus Ptilostomis (Trichoptera: Phryganeidae). Molasses bait traps are inexpensive, relatively maintenance free, and can be used as an effective collecting technique. Molasses and other sugar-based materials are suggested to be a possible source of nutrition for these caddisflies.

20 DISTRIBUTION / AVAILABILITY OF ABSTRACT
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS

21 ABSTRACT SECURITY CLASSIFICATION
UNCLASSIFIED

22a NAME OF RESPONSIBLE INDIVIDUAL	22b TELEPHONE (Include Area Code)	22c OFFICE SYMBOL
David E. Bowles, Capt, USAF, BSC	(512) 536-3471	USAFSAM/EKEN

DD Form 1473, JUN 86 Previous editions are obsolete

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

Send proof to:
Capt David E. Bowles
USAFSAM/EKEN
Brooks AFB, TX 78235-5301

Submitted to:
Entomological News

A NEW METHOD FOR COLLECTING ADULT PHRYGANEID CADDISFLIES (TRICHOPTERA: PHRYGANEIDAE)

David E. Bowles[1, 2], Karl Stephan[3], and Michael L. Mathis[4]

A-1

FOOTNOTES

[1] United States Air Force School of Aerospace Medicine, Epidemiology Division, Brooks AFB, TX 78235-5301.

[2] This paper reports the results of research completed while a graduate student in the Department of Entomology, University of Arkansas, Fayetteville, AR 72701. Opinions and assertions contained herein are those of the authors and are not to be regarded as official or as reflecting the views of the United States Air Force.

[3] Rt. 1, Box 913, Red Oak, OK 74563.

[4] Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

ABSTRACT: A fermented molasses trap was used to collect several specimens of the caddisfly genus Ptilostomis (Trichoptera: Phryganeidae). Molasses bait traps are inexpensive, relatively maintenance free, and can be used as an effective collecting technique. Molasses and other sugar-based materials are suggested to be a possible source of nutrition for these caddisflies.

Representatives of the trichopteran family Phryganeidae are large, attractive caddisflies often characterized by having distinctly patterned wings. Ten genera and 27 species of phryganeids are represented in North America (Wiggins 1984, Wiggins and Larson 1989). Depending on geographical location, phryganeids can be common and adults may be collected through a variety of techniques including fluorescent and UV-light traps, Malaise and flight-intercept traps, sweeping, and laboratory rearings from immature stages. Recently, one of the authors (KS) collected several specimens of the phryganeid genus Ptilostomis from an eastern Oklahoma woodland (Latimer County; near Red Oak) using a fermented molasses trap.

A mixture of molasses and water (3:1 ratio) was placed into a 355 ml plastic cup, approximately one-half full, and positioned approximately 2 m above ground level. The trap was being used to collect saprophagous Coleoptera that are attracted to the fermenting molasses.

During June 1989, several specimens of Ptilostomis postica (Walker) and two individuals of P. ocellifera (Walker) were collected from the molasses trap. Although specimens were removed from the trap daily, the numbers collected on a particular day were not recorded. The molasses trap was situated on a heavily forested hillside approximately 200 m from the nearest permanent water sources including a spring, small stream, and farm pond. All three sources of water could potentially serve as the larval habitat (Bowles and Mathis 1989). The molasses bait apparently attracted the caddisflies during nocturnal periods, and the specimens were found during daylight hours apparently drowned in the fermented mixture. No specimens were collected alive; no additional caddisfly species were collected from the trap.

The total number of specimens collected for each species was similar for both the molasses bait and UV-light trap samples that were collected nightly during the same time period. The molasses bait yielded five female and seven male specimens of P. postica and two female specimens of P. ocellifera. UV-light trap collections yielded five females and six males of P. postica and one female of P. ocellifera. Males of the latter species previously have been collected from the same area.

The reason why the phryganeids were attracted to the molasses bait is not known. However, some species of Trichoptera have been reported to feed as adults, particularly on sweet materials such as sugar baits, honeydew, honey, and fruit preserves (Malicky 1989). The phryganeids probably were attempting to obtain nourishment when they became trapped in the molasses mixture.

The molasses bait trap provides a relatively maintenance free and inexpensive means for collecting caddisflies. Molasses bait traps could prove advantageous in situations where the collector has time constraints such as simultaneously collecting from several localities. A series of several bait traps placed in a given area could be used as an effective collecting tool. Possibly, other sugar based materials also might be effective attractants.

Voucher specimens of P. ocellifera and P. postica are deposited in the University of Arkansas Insect Collection.

LITERATURE CITED

Bowles, D. E., and M. L. Mathis. 1989. Caddisflies (Insecta: Trichoptera) of mountainous regions in Arkansas, with new state records for the order. J. Kansas Entomol. Soc. 62:234-244.

Malicky, H. 1989. Feeding of adult caddisflies. Trichopterist Newsletter 16:18.

Wiggins, G. B. 1984. Trichoptera, pp. 271-311. In, R. W. Merritt and C. W. Cummins [eds.], An introduction to the aquatic insects of North America, 2nd ed. Kendall/Hunt: Dubuque, Iowa.

Wiggins, G. B., and D. J. Larson. 1989. Systematics and biology for a new Nearctic genus in the caddisfly family Phryganeidae (Trichoptera). 67:1550-1556.